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Acting Administrator Robert Perciasepe
Office of Environmental Information
U.S. Environmental Protection Agency
1200 Pennsylvania Ave NW (28221T)
Washington, DC 20460
ORD.Docket@epa.gov
Re: Docket #EPA-HQ-ORD-2013-0189

June 30, 2013

Re: Comments on Docket #EPA-HQ-ORD-2013-0189, "An Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska (Second External Review Draft)," U.S. Environmental Protection Agency, Washington, DC, April 2013

Dear Acting Administrator Perciasepe,

On behalf of World Wildlife Fund's Arctic Field Program, I am pleased to provide comments on U.S. Environmental Protection Agency's second draft of the Bristol Bay Watershed Assessment. WWF is the world's largest multinational science-based conservation organization with programs in more than 100 countries, and over five million members, including 1.2 million members in the United States.

WWF considers the Arctic and sub-Arctic seas of Alaska to be among its highest priorities for conservation. Within this region, the Bering Sea is particularly notable for its wealth of biological diversity, including more than 450 species of fish and shellfish, and 26 species of marine mammals, many of which are important to the Alaska Native peoples. The Bering Sea supports one of the world's most productive commercial fisheries, providing nearly half of America's seafood harvest annually. At the epicenter of this fishery is Bristol Bay, whose watersheds are an integral part of this productive Bering Sea ecosystem.

The current draft strengthens EPA's previous findings that mining will have a detrimental impact to Bristol Bay's remarkable fishery and wildlife resources. Not only did EPA clearly respond to concerns expressed by the peer reviewers, but also took seriously the comments from independent experts who commented on the first draft of the watershed assessment. WWF urges EPA to fully enact its authority and responsibility under the Clean Water Act and take action to protect the globally significant freshwater resources of Bristol Bay. While WWF acknowledges that further studies can expand knowledge of mining's impacts on wildlife and fisheries, enacting protections now is a critical step toward protecting the world's largest sockeye salmon fishery. The risks from mining should not be under-estimated because if built, potential mining projects in Bristol Bay will be with us in perpetuity. WWF respectfully requests that EPA complete the Assessment in a timely and thorough manner in 2013, and subsequently take appropriate actions so that future generations of people and

wildlife will benefit from the health and well-being of Bristol Bay's abundant renewable fisheries and wildlife.

As noted in EPA's second draft Assessment, Bristol Bay's sockeye salmon runs account for nearly half of the world's wild sockeye population. The bay is also home to a myriad of other wildlife species. As the EPA shows, the Bristol Bay watershed is home to over 190 species of birds, 29 species of fish and over 40 terrestrial mammals, all which have a role in the diverse and productive ecosystem.

WWF commends EPA for completing its second draft of the Bristol Bay Assessment. In the following pages, we enumerate key strengths of the draft, while also proposing additional information to be considered, and recommendations for the final version of the Assessment.

Strengths of the Assessment

WWF considers EPA's Assessment to be an improvement over its previous draft of May 2012. We thank the EPA's comprehensive approach and its reliance on peer reviewed data to obtain this information. In this second draft, EPA draws from a range of resources, including from an independent peer-review panel, as well as information from the developing actors such as the Environmental Baseline Data released by the Pebble Limited Partnership. We believe that the current draft Assessment is an important step toward a fuller understanding of the cumulative impacts of large-scale mining on fish and other wildlife. These impacts must be considered in conjunction with other cumulative stressors on the bay's fish and wildlife such as climate change and ocean acidification. Additionally:

- WWF applauds EPA's addition of potential mining scenarios to its earlier analysis from the proposed Pebble Mine, but understands that the total potential footprint of mining operations is unquantifiable at this point. For example, the potential impacts of the development and operation of a deep-water port are not fully analyzed. Also not fully understood is the potential volume, chemistry, and impacts of fugitive dust generated by mining, impacts of infrastructure development, and effects of transportation activities which may have a significant impact on fish, including salmon.
- This Assessment appropriately analyzes the potential expansion of the Pebble Mine by assessing different scenarios. The first scenario is an open pit based on a small initial mine (0.25 billion tons, possibly the size of other potential mines in surrounding claim blocks that could be developed after Pebble's infrastructure is in place. The second scenario is a 20-year mine (2 billion tons). And the third scenario is a mine that would extract an ore deposit of 6.5 billion tons. The potential expansion of a single mine and/or development of additional mines in the region is important information for the government, public, investors and other stakeholders to know to further understand the potential ecological, cultural, and social risks of the project.
- This current Assessment evaluates the potential for up to six additional mines to be developed in the watershed, with increases of stream and wetland losses by up to 84%. These additional mines could potentially have a total footprint of 13,000 acres, with up to 39 miles of streams eliminated as a result (Table 13-8, page 13-21). Presenting this information about the potential for growth of mining activities is a valuable aspect of the Assessment, as decision-makers must be able to consider the potential cumulative impacts on Bristol Bay's diverse freshwater habitats.

- Responding to peer review comments in its second draft, EPA presents the potential impacts of secondary development such as power generation, support infrastructure and other activities (i.e. housing, more human access to hunting and fishing areas, etc.) associated with constructing and operating a mine in this remote location.
- Another improvement in this second draft Assessment is consideration of potential impacts from climate change. The Bristol Bay Assessment's peer review panel strongly urged EPA to more fully consider the broad range of impacts from climate change. Climate change projections show an average temperature increase of 4 degrees C by the end of the century, with precipitation increasing by 30% annually and a total of nearly 270mm of precipitation (page 3-44 of the Assessment). A variety of detrimental impacts to salmon populations are anticipated. A report on how climate change may impact Alaska salmon populations shows the response to climate change will differ among species, depending on their life cycle in freshwater. Climate change may alter ocean entry timing for salmon, cause decreases in summer stream flows and result in higher water temperatures. Rapid changes in climatic conditions may not extirpate salmon, but they will impose greater stress on many stocks that are adapted to present climatic conditions[1]. The report concludes that "[The] survival of sustainable populations will depend on the existing genetic diversity within and among stocks, conservative harvest management, and habitat conservation." In other words, the diversity of salmonid populations is a critical feature contributing to their resilience to climate change stressors. Construction of a massive mine and accompanying infrastructure at the headwaters of the Nushagak and Kvichak watershed would significantly impact the quality and quantity of available salmon spawning and rearing habitat, thereby diminishing the very diversity that is critical for salmon to better withstand the stressors of climate change.

Recommendations for the Assessment

While WWF commends the quality and scientific rigor of EPA's second draft Assessment, we suggest that several additions would enhance the utility of this Assessment in providing a comprehensive understanding of the Nushagak and Kvichak watersheds and ecosystem, and the potential impacts to it. Specifically, we recommend that EPA:

- Expand the Assessment to include a mining scenario based solely on an underground mine at the Pebble East deposit. EPA should include the potential effects of this underground mine, since some stakeholders have indicated that Pebble may initially just apply for an underground mine plan. The analysis should also assess a larger mine plan then the current largest scenario in the final Assessment, to include mining at the full scale of the deposit.
- Include an assessment of recent king salmon stock concerns in Western Alaska. The Nushagak River was the only major western Alaska River in 2012 that met its king salmon escapement goal. Other traditional king salmon strongholds, including the Yukon and Kuskokwim Rivers, did not meet their king salmon escapement goals. There is scientific agreement that king salmon stocks throughout Alaska have been in decline for the past few years, so it is important for the EPA to include the fact that king salmon runs are being stressed throughout Alaska by something other than large-

[1] Bryant, M. D. 2009. *Global climate change and potential effects on Pacific salmonids in freshwater ecosystems of southeast Alaska*. Climatic Change 95:169–193

scale mining in the Bristol Bay region. Large-scale mining in the region can further exacerbate and stress Bristol Bay's king salmon populations.

- Consider the ongoing National Marine Fisheries Service study of the potential mining impacts on freshwater seals of Lake Iliamna in the final Watershed Assessment. This study will help guide future EPA actions. These seals are currently under review by the National Oceanic and Atmospheric Administration for potential listing as a protected species under the Endangered Species Act. These marine mammals are an important part of the Bristol Bay ecosystem, as well as for Alaska Native cultures for subsistence purposes. The 404(b)(1) Guidelines of the Clean Water Act prohibit the authorization of discharges where they would jeopardize the continued existence of an endangered or threatened species or destroy or adversely modify its designated critical habitat. These same provisions should be considered for the endangered Cook Inlet beluga whales which could be adversely impacted by Pebble's potential infrastructure and activities in Cook Inlet.
- Acquire a full understanding of the ecological linkages between species, including endangered ones. In particular, the Assessment should address the potential impacts of large scale mining in Bristol Bay that could cause significant impacts on other species of fish, marine mammals and birds as a result from reduced salmon runs and pollution on the region's freshwater system and marine estuaries. Regardless of a potential ESA designation, adverse impacts to Bristol Bay salmon populations will have a reverberating impact throughout the marine food web, including for the endangered Cook Inlet beluga whale and Lake Iliamna seal.
- Expand studies on the potential impact of the planned mine on avian life in this region. The coastal fringe of Bristol Bay, including eelgrass beds, extensive coastal lagoons, deltas, wetlands, and estuaries, supports an abundance and diversity of waterfowl in the region. According to the National Audubon Society, there may be no place else on Earth so important to millions of birds from so many different continents as Bristol Bay. Four migratory flyways overlap here, with birds from Africa, Asia, North America, South America and the Central Pacific islands, all migrating to and from the region[2].
- Update the Assessment's section on the economic values to acknowledge the most recent analysis of the economic values of the salmon fishery, as quantified by University of Alaska Institute of Social Research (ISER) in its May 2013 report titled "The Economic Importance of the Bristol Bay Salmon Industry." ISER's findings showed that the fishery is worth a total of over $1.5 billion and provides 12,000 fishing and processing jobs during the summer salmon fishing season. Measured as year-round jobs, and adding jobs created in other industries, the Bristol Bay salmon fishery created the equivalent of almost 10,000 year-round American jobs across the country[3]. These numbers are impressive indicators of an economic resource that would be jeopardized by construction of a mine in the watershed. Other analyses, such as a 2011 study by WWF, demonstrate the global significance of the Bristol Bay fishery. Graphic's included in the 2011 WWF study titled "The Value of Commercial Fisheries Near Bristol Bay, Alaska" illustrate the geographical distribution of Bristol Bay salmon sold in the global market by just one salmon processor, with its salmon

[2] Audubon Alaska. 2013. *Audubon's Bristol Bay Website*. http://ak.audubon.org/bristol-bay

[3] Knapp, G., M. Guetttabi, S. Goldsmith. 2013. *The Economic Importance of the Bristol Bay Salmon Industry*. University of Alaska Institute of Social and Economic Research prepared for Bristol Bay Regional Seafood Development Association. http://www.iser.uaa.alaska.edu/Publications/2013_04_-TheEconomicImportanceOfTheBristolBaySalmonIndustry.pdf

product reaching four out of the seven continents, and as far as Japan, South Africa and the United Kingdom. The report includes the residency of Bristol Bay salmon permit holders to demonstrate the national, statewide and regional importance of the Bristol Bay's fisheries. Bristol Bay provides jobs and economic benefits for Alaska Native tribal members, as well as American's from all walks of life.[4]

Other Considerations

In addition to the above recommendations for EPA to incorporate in the final draft of its Bristol Bay Assessment, WWF hopes that the EPA will consider other issues that have been discussed by different stakeholders during the Assessment process. These issues should help guide future EPA decisions regarding mining in Bristol Bay.

- Factions opposed to the EPA Watershed Assessment have objected to a process that does not review and assess a specific mine plan. Recent Alaska history shows that initial plans submitted by mining companies to State and Federal permitting agencies may have little to do with the eventual and ultimate development of the mining prospect. An example is the Red Dog Mine in Northwest Alaska, where, in 2008, the mining company Teck Cominco applied for and received mine extension permits for the nearby Aqqaluk deposit[5]. Expanded mining footprints result in expanded local and cumulative environmental, cultural, and sociological impacts. This reality justifies the EPA's precautionary approach and eye toward long term and cumulative impacts.
- EPA's role in protecting the freshwater resources of Bristol Bay is all the more significant, given the State of Alaska's recent history in modifying land use regulations in the watershed. In a Bristol Bay Area Plan drafted and adopted in 2005 by former Governor Frank Murkowski's administration, the state eliminated 90 percent of prior inland habitat classifications for fish and wildlife designated habitat, and helped to open state lands in the Bristol Bay region for mineral development. However, in September 2012, the Alaska courts threw out the State of Alaska's seriously flawed plan. The Alaska Superior court agreement in the 2009 case brought by tribes, conservation groups and fishermen called on the Alaska Department of Natural Resources to make revisions to its 2005 pro-mining land use plan. The decision required the state to develop a new plan that will be completed in 2013. Local communities and conservation forces have proposed an alternative plan that accurately characterizes the wildlife, fisheries and cultural values of the area, known as the "Citizens' Alternative Bristol Bay Area Plan" that challenges the state plan and supports conservation in the region. The State's actions show that the EPA and federal decision makers must take additional actions to protect Bristol Bay's important salmon fisheries. WWF advises EPA to review the Citizens' Alternative.
- Other anthropogenically induced environmental changes may pose significant threats to Bristol Bay salmon stocks and ecosystem. Ocean acidification, or the oceanic uptake of anthropogenic carbon dioxide, is altering the seawater chemistry of the world's oceans with consequences for marine biota. While the potential impacts of

[4] Kruse, S., K. Sheeran, and T. Hesselgrave. 2011. *The Value of Commercial Fisheries Near Bristol Bay, Alaska*. Report prepared by Ecotrust for World Wildlife Fund. http://worldwildlife.org/publications/value-of-commercial-fisheries-near-bristol-bay-alaska

[5] U.S. Environmental Protection Agency. 2009. *Record of Decision for the Red Dog Mine Extension of the Aqqaluk Project.* http://www.epa.gov/region10/pdf/permits/npdes/ak/red-dog-aqqaluk-rod.pdf

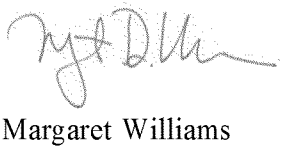
ocean acidification are not clearly understood, ongoing research has identified a wide variety of detrimental impacts to marine species and systems.

Conclusion

Bristol Bay is globally significant for its remarkable biological productivity. The region's intact riparian, upland, and coastal habitats are unrivaled in scale and diversity. Indeed, there is no other place on the planet that offers the promise of a fully functioning ecosystem. Nowhere else do 30 to 40 million sockeye salmon fill thousands of streams and rivers as they have for centuries. EPA has the opportunity and responsibility to protect these outstanding natural values.

EPA's second draft Assessment demonstrates all too well that large scale mining in the Nushagak and Kvichak watersheds will have a detrimental impact to Bristol Bay over the short term of the potential mine, and over the long-term, when American citizens will bear the brunt of financing maintenance and clean-up of the toxic mining wastes. If built, these mines will be with us in perpetuity. WWF urges the EPA to finish the Assessment in a timely and thorough manner in 2013, and take subsequent protective actions so that future generations can benefit from the health and wellbeing of Bristol Bay's abundant renewable fisheries and wildlife. Thank you for considering these comments.

Sincerely,



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